

rd.cpp

```
1  #include <Servo.h>
2
3  // Define ultrasonic sensor pins
4  const int trigPin = 9;
5  const int echoPin = 10;
6
7  // Define servo motor pin
8  const int servoPin = 11;
9
10 Servo servo;
11
12 // Variables for ultrasonic sensor
13 long duration;
14 int distance;
15
16 void setup() {
17     // Initialize serial communication
18     Serial.begin(9600);
19
20     // Define pin modes
21     pinMode(trigPin, OUTPUT);
22     pinMode(echoPin, INPUT);
23
24     // Attach servo to its pin
25     servo.attach(servoPin);
26 }
27
28 void loop() {
29     // Trigger ultrasonic sensor
30     digitalWrite(trigPin, LOW);
31     delayMicroseconds(2);
32     digitalWrite(trigPin, HIGH);
33     delayMicroseconds(10);
34     digitalWrite(trigPin, LOW);
35
36     // Measure the duration of the pulse
37     duration = pulseIn(echoPin, HIGH);
38
39     // Calculate distance in centimeters
40     distance = duration * 0.034 / 2;
41
42     // Print distance for debugging
43     Serial.print("Distance: ");
44     Serial.println(distance);
45
46     // Check if a cup is detected within a certain range
47     if (distance < 10 && distance > 0) {
48         // If a cup is detected, dispense water
49         dispenseWater();
50     }
51 }
52
53 void dispenseWater() {
54     // Rotate the servo motor to dispense water
55     servo.write(90); // Change the angle as needed for your setup
56     delay(1000);     // Adjust this delay to control the amount of water dispensed
57     servo.write(180); // Return the servo to its initial position
```

